

REMARKS

In the first Office Action, the Examiner rejected claims 1, 3, 4, 13, 15, 16, and 20 under 35 U.S.C. §102(b) as being anticipated by Huffmaster (US 5,437,253). The Examiner rejected claims 2, 5, 6, 7, 14, 17, 18, and 19 under 35 U.S.C. §103(a) as being unpatentable over Huffmaster (US 5,437,253) in view of Murakami (US 5,337,720).

Claims 1-20 are currently pending.

Reconsideration and re-examination of the application as amended is respectfully requested.

Rejection Under 35 USC §102(b)

The Examiner rejected claims 1, 3, 4, 13, 15, 16, and 20 as being anticipated by US 5,437,253 to Huffmaster. Applicants respectfully disagree and traverse the Examiner's rejection.

The present invention as disclosed and claimed includes a number of patentable features that distinguish over the prior art relied upon by the Examiner. For example, the present invention as disclosed and claimed in independent claims 1, 13, and 20 require: 1) controlling at least one actuator associated with the deactivated cylinders, 2) while the cylinders are deactivated (claims 1 and 13), and 3) based on operating conditions associated with the activated cylinders. As described in the specification in paragraph 8, for example, this pre-positioning of the actuators associated with the deactivated cylinders reduces the time required to properly position the actuators when reactivating cylinders resulting in reduced torque variation or excursions. In contrast, Huffmaster '253 (and Murakami '720 discussed below) do not preposition any actuators associated with the deactivated cylinders while the cylinders are deactivated as disclosed and claimed by Applicants. Rather, Huffmaster '253 (and Murakami '720) do not begin controlling actuators associated with the deactivated cylinders until activation of those cylinders begins (See Huffmaster Fig. 2 and associated description beginning at Col. 3, l. 58, for example). In addition, Huffmaster does not control the actuators associated with the deactivated cylinders based on operating conditions associated with the activated cylinders as disclosed and claimed by Applicants.

With respect to dependent claims 3 and 15, Huffmaster does not disclose controlling at least one valve actuator to achieve a desired cylinder air

charge in the deactivated cylinders. The only device disclosed by Huffmaster '253 to control air charge is the throttle valve.

With respect to claims 16 and 20, Huffmaster '253 does not disclose at least one dedicated actuator or throttle valve associated with the deactivated cylinders. As described in Applicants' specification, the present invention is particularly suited for applications having dual intake manifolds and plenums (See Fig. 1) with independently controllable throttle valves 44, 46. This feature is neither disclosed nor suggested by Huffmaster '253 (or Murikami '720).

As such, Applicants' invention as disclosed and claimed includes various features that are not found in Huffmaster '253. Applicants therefore respectfully request the Examiner to withdraw the rejection under 35 U.S.C. §102(b).

Rejection Under 35 U.S.C. §103(a)

The Examiner rejected claims 2, 5, 6, 7, 14, 17, 18, and 19 as being unpatentable over Huffmaster in view of Murakami (US 5,337,720). Applicants respectfully disagree and traverse the Examiner's rejection.

The Examiner recognizes that Huffmaster '253 fails to disclose a variable cam timing device (or other variable valve timing control) as disclosed and claimed by Applicants and relies on Murakami '720 to provide this feature. However, Murakami '720 also fails to disclose a variable cam timing device (or other variable valve timing device) as disclosed and claimed by Applicants. As described in Applicants' specification and illustrated in Fig. 2, a variable cam timing device allows the position of the camshaft relative to the crankshaft to vary so that intake and exhaust valve timing can be varied to achieve a desired air charge (see paragraphs 28-30, for example). In contrast, the mechanism disclosed by Murakami '720 simply selectively disables operation of the intake and exhaust valves to operate in the reduced displacement mode. (See Col. 6, ll. 35-45, for example) There is no teaching or suggestion to preposition the intake or exhaust valves based on operating conditions of the activated cylinders to achieve a desired air charge as disclosed and claimed by Applicants. As such, Applicants' claimed invention is clearly patentable over the proposed combination of Huffmaster and Murakami.

In addition, as described above and incorporated here by reference, Huffmaster '253 and Murakami '720 fail to disclose or suggest a number of other features of Applicants' claimed invention. In particular, the proposed combination fails to teach or suggest 1) controlling at least one actuator associated with the deactivated cylinders, 2) while the cylinders are deactivated (claims 1 and 13), and 3) based on operating conditions associated with the activated cylinders. Similar to Huffmaster '253, Murakami '720 does not teach prepositioning of an actuator associated with the deactivated cylinders based on operating conditions of the activated cylinders. In contrast, the control of the actuators associated with the deactivated cylinders of Huffmaster and Murakami does not begin until those cylinders are being activated (See Murakami, Col 4, ll. 7-14, for example).

There is no teaching or suggestion in Murakami to preposition an actuator as disclosed and claimed by Applicants. As described above, the valve operation device disclosed by Murakami to provide a reduced displacement mode of operation could not be controlled (pre-positioned) based on operating conditions associated with the activated cylinders because the device provides only a "valve enabled" or "valve disabled" condition. As such, it is impossible to "preposition" the valve when deactivated as claimed by Applicants because, by definition, control of the valve as described by Murakami would activate the corresponding cylinder. As such, Murakami 1) does not disclose a variable cam timing device as disclosed and claimed by Applicants, 2) does not teach or suggest prepositioning the valve control device that is disclosed based on operating conditions associated with the activated cylinders as claimed by Applicants, and 3) does not disclose controlling the disclosed valve control device to provide the desired cylinder air charge in the deactivated cylinders as disclosed and claimed by Applicants.

With respect to claims 6, 7, 18, and 19, Murakami does not disclose an engine having two banks of cylinders with each bank having an associated dedicated intake manifold, plenum and variable cam timing mechanism. Neither Huffmaster nor Murakami disclose or suggest such a configuration. As described by Applicants in paragraph 5 of the specification, in engines that include separate intake manifolds and plenums for each bank of cylinders, the intake manifold pressure of the manifold associated with the deactivated cylinders approaches the current ambient barometric pressure and may result in near maximum torque when reactivated. This problem is not recognized by the

prior art relied upon by the Examiner because neither reference discloses an engine with separate or dedicated intake manifolds and plenums as disclosed and claimed by Applicants.

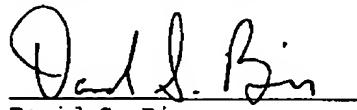
As such, Applicants' invention as disclosed and claimed includes a number of features that are neither disclosed nor suggested by the combination of references proposed by the Examiner. Applicants therefore respectfully request the Examiner to withdraw the rejection under 35 U.S.C. §103.

Summary

Applicants have made a genuine effort to respond to each of the Examiner's rejections and objections to advance the prosecution of this case. Applicants respectfully submit that all formal and substantive requirements for patentability have been met and that this case is in condition for allowance, which action is respectfully requested. If any further amendment is necessary to advance prosecution and place this case in allowable condition, the Examiner is courteously requested to contact the undersigned by fax or telephone at the numbers listed below.

No additional fee is believed to be due as a result of filing this paper. However, please charge any required fees, to Deposit Account 06-1510 (Ford Global Technologies, LLC). If there are insufficient funds in this account, please charge the fees to Deposit Account No. 06-1505.

Respectfully submitted,



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